

What is claimed is:

1. A method of transmitting a wave division multiplexed (WDM) optical signal, comprising the steps of:
  - providing a WDM optical signal into an optical fiber having a first end and a second end;
  - amplifying the WDM optical signal propagating along the optical fiber; and
  - supplying power for amplification from a power cable having at least one end terminated between the first end and the second end of the optical fiber.
2. The method of claim 1, wherein the power cable length is less than the total length of the optical fiber.
3. The method of claim 1, wherein the power cable is terminated at about a midpoint of the optical fiber.
4. The method of claim 1, wherein a first end of the power cable is connected to a positive voltage supply and a second end of the power cable is connected to a negative voltage supply.
5. The method of claim 1, wherein the step of supplying power for amplification supplies at least 10,000 watts of total power for amplification.
6. The method of claim 1, wherein the optical fiber is at least 9000 km in length.
7. The method of claim 1, further comprising a step of monitoring optical signal quality of the WDM optical signal propagating along the optical fiber at a site of power termination.
8. The method of claim 1, further comprising a step of adjusting a gain profile of the WDM optical signal propagating along the optical fiber at a site of power termination.

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- 9. The method of claim 1, further comprising the steps of:
  - filtering out at least one channel and fewer than all channels of the WDM optical signal propagating along the optical fiber; and
  - inserting at least one other channel of the WDM optical signal propagating along the optical fiber,
    - wherein the steps of filtering out at least one channel and inserting at least one other channel are performed at a site of power termination.
- 10. The method of claim 1, further comprising a step of splitting the optical fiber into a first branch path and a second branch path at a site of power termination.
- 11. The method of claim 1, wherein the step of amplifying the WDM optical signal propagating along the optical fiber is performed by at least one Raman amplifier.
- 12. The method of claim 1, wherein the step of supplying power for amplification supplies power to only one end of the power cable.
- 13. A method of providing power via a power cable to optical line units for amplification of a WDM optical signal propagating along an optical fiber comprising the steps of:
  - providing said optical fiber having a first end and a second end, said fiber being optically terminated solely at the first end and the second end; and
  - terminating at least one end of the power cable between a first plurality of line units and a second plurality of line units connected to said optical fiber and said power cable.
- 14. The method of claim 13, wherein the power cable length is less than the total length of the optical fiber.
- 15. The method of claim 13, further comprising the step of launching a WDM optical signal into the optical fiber.

16. The method of claim 15, further comprising the step of monitoring quality of the WDM optical signal at a site of power termination.

17. The method of claim 15, further comprising a step of adjusting a gain profile of the WDM optical signal at a site of power termination.

18. The method of claim 15, further comprising the steps of:  
filtering out at least one channel and fewer than all channels of the WDM optical signal; and  
inserting at least one other channel of the WDM optical signal,  
wherein the steps of filtering out at least one channel and inserting at least one other channel are performed at a site of power termination.

19. The method of claim 13, wherein the line units comprise Raman amplifiers.

20. A method of transmitting a wave division multiplexed (WDM) optical signal via an optical fiber having a first end and a second end, comprising the steps of:  
providing a WDM optical signal into a long-haul optical fiber terminated solely at a first end and a second end;  
amplifying the WDM optical signal propagating along the optical fiber in a plurality of line units; and  
supplying power for amplification via a power cable to the plurality of line units,  
wherein the power cable is positioned adjacent to the optical fiber,  
wherein the power cable is connected to the line units, and  
wherein the power cable is terminated at a site of power termination located between the first end and the second end of the optical fiber.

21. The method of claim 20, wherein the power cable supplies at least 10,000 watts of power to the line units.

22. The method of claim 20, wherein the line units comprise Raman amplifiers.

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